ELSEVIER

Volume 342, 26 March 1999

thin solid films

# Contents

**Letters**

On the properties of $Cu_XC_{1-X}Te$: a novel semiconductor alloy
S. Jiménez-Sandoval, S. López-López, B.S. Chao, M. Meléndez-Lira . . . . . 1

Probing the surface forces of atomic layered $SrTiO_3$ films by atomic force microscopy
H. Tanaka, H. Tabata, T. Kawai . . . . . 4

Yellow organic electroluminescent device based on novel thiophene Al complex as an emitting layer
K. Okada, Y.-F. Wang, T. Nakaya . . . . . 8

Structural and magnetoresistive properties of sputtered co/cu multilayers in the vicinity of the first maximum of magnetoresistance
E. Rozenberg, D. Mogilaynski, J. Pelleg, G. Gorodesky, R. Somekh . . . . . 11

**Synthesis and Characterization**

Characteristics and sensing properties of dipped $La_{0.8}Sr_{0.2}Co_{1-x}Ni_xO_{3-\delta}$ film for CO gas sensors
C.M. Chiu, Y.H. Chang . . . . . 15

Effects of octa decyl thiol (ODT) treatment on the gallium arsenide surface and interface state density
K. Remashan, K.N. Bhat . . . . . 20

Growth behavior and surface morphology of Ag rough thin films deposited on silicone oil surfaces
C.-M. Fenga, H.-L. Gea, M.-R. Tang, G.-X. Yea, Z.-K. Jiaoa . . . . . 30

Electrostatic sol-spray deposition (ESSD) and characterisation of nanostructured $TiO_2$ thin films
C.H. Chen, E.M. Kelder, J. Schoonman . . . . . 35

Phase diagrams for CVD diamond deposition from halogen-containing gas phase
Z.-J. Liu, D.W. Zhang, J.-Y. Zhang, Y.-Z. Wan, J.-T. Wang . . . . . 42

Characterization of boron-doped tin oxide thin films
S.A. Nasser . . . . . 47

Mechanical and chemical properties of organic coatings applied to metallic sheet substrates
A.A. Roche, J. Guillemenet. . . . . 52

Pulsed laser deposition of conducting porous La-Sr-Co-O films
X. Chen, N.J. Wu, D.L. Ritums, A. Ignatiev . . . . . 61

The effects of ion irradiation on NiTi shape memory alloy thin films
F. Goldberg, É.J. Knystautas . . . . . 67

Influence of oxygen and nitrogen on the growth of hot-filament chemical vapor deposited diamond films
Z. Yu, U. Karlsson, A. Flodström . . . . . 74

Mechanical, optical and structural properties of $TiO_2$ and $MgF_2$ thin films deposited by plasma ion assisted deposition
G. Atanassov, J. Turlo, J K. Fu, Y.S. Dai . . . . . 83

Evidence of $\omega$-phase in ion beam sputtered zirconium thin films
L. Pichon, T. Girardeau, F. Lignou, A. Straboni . . . . . 93

Tungsten-containing amorphous carbon films deposited by pulsed vacuum arc
O.R. Monteiro, M.-P. Delplancke-Ogletree, I.G. Brown. . . . . 100

Growth of spinel zinc thioindionate thin film by single-source MOCVD
R. Nomura, H. Matsuda, T. Miyai, A. Baba . . . . . 108

Effects of organic As-precursors on the incorporation of In and Ga into (GaIn)As films grown by metal-organic vapor-phase epitaxy
G. Kirpal, M. Gerhardt, V. Gottschalch, R. Franzheld, H.C. Semmelhack . . . . . 113

Films obtained by plasma polymerization of pyrrole
G.J. Cruz, J. Morales, R. Olayo . . . . . 119

Structural investigations on ultrathin Mo layers in a-Si:H with emphasis on the island–continuous layer transition
M. Löhmann, F. Klabunde, J. Bläsing, P. Veit, T. Drüsedau . . . . . 127

Electrical and gated photoluminescence intensity studies on Schottky and oxidized Schottky structures
A. Ahaitouf, A. Bath . . . . . 136

In situ photoluminescence characterization of porous silicon formation
N. Chi, D.L. Phillips, K.-Y. Chan . . . . . 142

Photoelectrochemical studies of dye-sensitizedpolycrystalline titanium oxide thin films prepared by sputtering
M. Gómez, J. Rodriguez, S.-E. Lindquist, C.G. Granqvist . . . . . 148

Simple method for the determination of optical parameters of inhomogeneous thin films
L. De Caro, M.C. Ferrara . . . . . 153

Characterization of $SnO_2$ thin films through thermoelectric power measurements
G. Gordillo, B. Paez, C. Jácome, J.M. Flórez . . . . . 160

Free-carrier plasma resonance effects and electron transport in reactively sputtered degenerate ZnO:Al films
S. Brehme, F. Fenske, W. Fuhs, E. Nebauer, M. Poschenrieder, B. Selle, I. Sieber . . . . . 167

An X-ray diffraction study of interface roughness and diffusion in Ag/Pd superlattices
K. Temst, M.J. Van Bael, C. Van Haesendonck, Y. Bruynseraede, D.G. de Groot, N. Koeman, R. Griessen . . . . . 174

**Surfaces, Interfaces and Colloidal Behaviour**

Electroepitaxy: the control of the kinetics and morphology of InSb
L.A. Borisova, Z.L. Akkerman, T.P. Koretskaya . . . . . 180

Enhancement of TiC/stainless steel interfaces by $N^+$-implantation
T.W. Kang, C.Y. Hong, C.K. Chung, T.W. Kim . . . . . 184

**Metallurgical, Protective and Hard Layers**

Hardness enhancement of sputtered $Ni_3Al$/Ni multilayers
S. Tixier, P. Böni, H. Van Swygenhoven . . . . . 188

Tribological performance and tribochemistry of nanocrystalline WC/amorphous diamond-like carbon composites
A.A. Voevodin, J.P. O'Neill, J.S. Zabinski . . . . . 194

Elastic modulus of plasma-sprayed coatings determined by indentation and bend tests
H.-J. Kim, Y.-G. Kweon . . . . . 201

**Mechanics and Nanomechanics of Thin Layers**

Adhesion and failure mechanisms of tungsten–carbon containing multilayer and graded coatings subjected to scratch tests
E. Harry, A. Rouzaud, P. Juliet, Y. Pauleau . . . . . 207

Thin film TiC/TaC thermocouples
H.D. Bhatt, R. Vedula, S.B. Desu, G.C. Fralick . . . . . 214

**Electronics, Optics and Opto-electronics**

Chemical vapor etching of copper using oxygen and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione
R. Steger, R. Masel . . . . . 221

Ellipsometric studies of porous silicon
V.A. Makara, V.A. Odarych, O.V. Vakulenko, O.I. Dacenko . . . . . 230

The surface reaction and diffusion of $NO_2$ in lead phthalocyanine thin film
C. Hsieh, C.J. Liu, Y.H. Ju . . . . . 238

Scanning photothermal beam deflection- and scanning photothermal displacement-imaging of polymer channel waveguides: a comparison
M.J.S Kreiter, S. Mittler-Neher . . . . . 244

Enhanced-Raman scattering from organic thin films in an attenuated total reflection geometry mediated by half-leaky guided modes
S. Hayashi, T. Kitagawa, Y. Sekiguchi, T. Kume . . . . . 249

Analytical design of antireflection coatings for silicon photovoltaic devices
P. Nubile . . . . . 257

Study of single and double Si $\delta$-doped GaAs layers by spectral photoconductivity measurements
J. Oswald, J. Pastrňák, F. Karel, O. Petříček, A. Salokatve . . . . . 262

**Langmuir–Blodgett, Biological and Related Films**

Copper-oxide thin films prepared from Langmuir–Blodgett films
M. Schurr, M. Seidl, A. Brugge, H. Voit . . . . . 266

Study of mixed system in monolayers and multilayers transferred by Langmuir–Blodgett technique
V.R. Shembekar, A. Dhanabalan, S.S. Talwar, A.Q. Contractor . . . . . 270

Monolayers and Langmuir–Blodgett films of a palladium(ii)-tetraazaporphyrin
R. Ricceri, G. Ricciardi, F. Lelj, G. Martini, G. Gabrielli . . . . . 277

**Thin Film Devices, Sensors and Actuators**

Aluminium oxide tunnel junctions: influence of preparation technique, sample geometry and oxide thickness
D. Diesing, A.W. Hassel, M.M. Lohrengel . . . . . 282

**Condensed Matter Film Behaviour**

Structure and microtribological behavior of Teflon and Teflon/$Si_3N_4$ micro-assembling film
J. Wang, X. Lu, S. Wen, H. Li, L. Wang . . . . . 291

Morphology changes of thin Pd films grown on $SiO_2$: influence of adsorbates and temperature
M. Eriksson, L. Olsson, U. Helmersson, R. Erlandsson, L.-G. Ekedahl . . . . . 297

Low-energy electron diffraction, Scanning tunneling microscopy, and X-ray photoemission spectroscopy investigations of DMe-DCNQI on Cu(110)
H. Kopf, C. Seidel, H. Fuchs . . . . . 307

Photoconductivity of Si/Ge Buffers, superlattices, and multiple quantum wells
D. Menzel, W. Koschinski, K. Dettmer, J. Schoenes . . . . . 312

**Corrigendums**

Corrigendum to ''New $\gamma$-$In_2Se_3$/TCO ($SnO_2$ or ZnO) thin films rectifying heterojunction''
S. Marsillac J.C. Bernède . . . . . 317

**Erratums**

Erratum to ''Valence band splitting in $Cd_{(1-x)}Zn_xTe$ epilayers''
K. Cohen, R. Beserman, S. Stolyarova, R. Weil, Y. Nemirovsky . . . . . 318

Author Index . . . . . 319

Subject Index . . . . . 321

For more information on *Thin Solid Films*, please visit our website at:
http://www.elsevier.nl/locate/tsf

The publisher encourages the submission of articles in electronic form thus saving time and avoiding rekeying errors. A leaflet describing our requirements is available from the publisher upon request